

CLAIMS

1. A process of producing carotenoid compounds by culturing a microorganism producing a plurality of carotenoid compounds, wherein the production ratios of the resultant carotenoid compounds are made constant by controlling the concentration of dissolved oxygen in the culture during cultivation.

2. The process according to claim 1, wherein the microorganism is a bacterium in which the nucleotide sequence of a DNA corresponding to its 16S ribosomal RNA has 98% or more homology to the nucleotide sequence as shown in SEQ ID NO: 1.

3. The process according to claim 1, wherein the microorganism is selected from the group consisting of E-396 strain (FERM BP-4283) and mutants thereof, and A-581-1 strain (FERM BP-4671) and mutants thereof.

4. The process according to claim 1, wherein the carotenoid compounds are one or more compounds selected from the group consisting of astaxanthin, adonixanthin,  $\beta$ -carotene, echinenone, canthaxanthin, zeaxanthin,  $\beta$ -cryptoxanthin, 3-hydroxyechinenone, asteroidenone and adonirubin.

5. A process of producing carotenoid compounds by culturing a microorganism producing a plurality of carotenoid compounds, wherein the production ratios of the resultant carotenoid compounds are changed by controlling the concentration of dissolved oxygen in the culture during cultivation.

6. The process according to claim 5, wherein the microorganism is a bacterium in which the nucleotide sequence of a DNA corresponding to its 16S ribosomal RNA has 98% or more homology to the nucleotide sequence as shown in SEQ ID NO: 1.

7. The process according to claim 5, wherein the microorganism is selected from the

group consisting of E-396 strain (FERM BP-4283) and mutants thereof, and A-581-1 strain (FERM BP-4671) and mutants thereof.

8. The process according to claim 5, wherein the carotenoid compounds are one or more compounds selected from the group consisting of astaxanthin, adonixanthin,  $\beta$ -carotene, echinenone, canthaxanthin, zeaxanthin,  $\beta$ -cryptoxanthin, 3-hydroxyechinenone, asteroidenone and adonirubin.

9. The process according to claim 5, wherein the production ratio of adonixanthin is increased by controlling the concentration of dissolved oxygen in the culture during cultivation within a range of 40-100% of the saturated oxygen concentration.

10. The process according to claim 5, wherein the production ratio of astaxanthin is increased by controlling the concentration of dissolved oxygen in the culture during cultivation within a range of 20-30% of the saturated oxygen concentration.

11. The process according to claim 5, wherein the production ratios of  $\beta$ -carotene, echinenone, canthaxanthin, 3-hydroxyechinenone and adonirubin are increased by controlling the concentration of dissolved oxygen in the culture during cultivation within a range of 0-10% of the saturated oxygen concentration.

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